At the request of the Port Authority of New York and New Jersey (PANYNJ), M/A-COM performed coverage measurements and an analysis of their Public Safety Department (PSD) 800Mhz EDACS Simulcast Trunked Radio System. The drive data was collected during the summer of 2003. The testing for the PSD system consist of the following transmit sites:

- Chrysler Building, NYC
- Todt Hill, Staten Island
- John F. Kennedy International Airport (JFK)
- George Washington Bridge (GWB)
- Newark Liberty International Airport (NLIA) – future site
- LaGuardia Airport (LGA) – future site

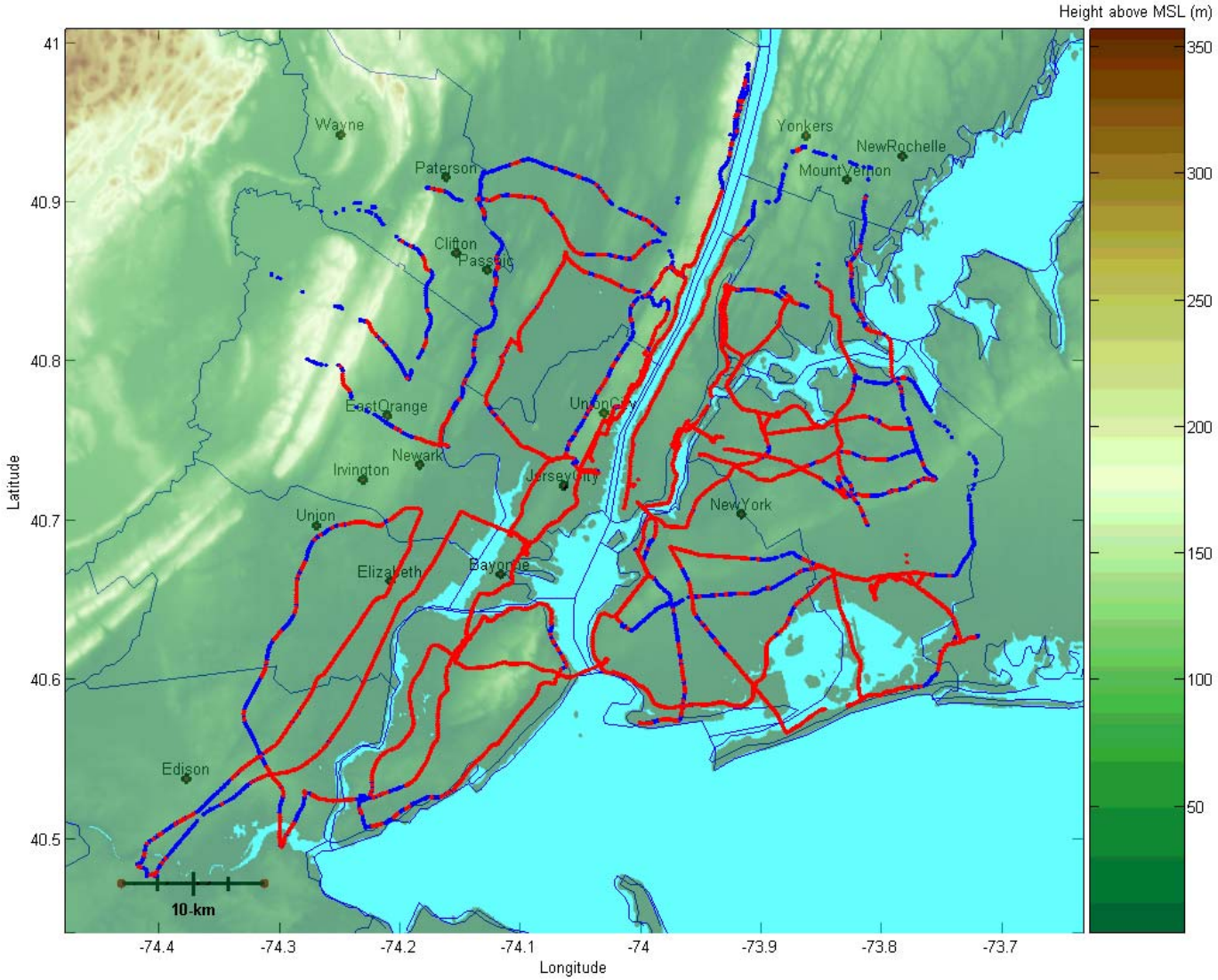
The designs to add the NLIA and LGA sites are currently underway. Post-processing analysis was performed by M/A-COM in Lynchburg, VA.

A drive plan was developed to collect evenly distributed data points throughout the PANYNJ District. PANYNJ District is defined as a twenty-five mile radius center at the Statue of Liberty. The sites utilized and their testing configurations are summarized in the Table below.

Parameter	Chrysler	Todt Hill. SI	JFK	GWB	NLIA	LGA	Notes
Latitude	40-45-06 N	40-36-04 N	40-39-04 N	40-51-00 N	40-41-28 N	40-46-27 N	GPS at site
Longitude	73-58-33 W	74-06-56 W	73-48-35 W	73-56-47 W	74-10-34 W	73-52-26 W	GPS at site
Antenna Elevation (AGL)	1004'	234'	55'	592'	90'	58'	(Est. height at phase center)
Antenna Model #			BMR10-O	DB806-XT	DB586-XT	DB586-XT	
Antenna Gain	6dB	10dB	10dB	6dB	6dB	6dB	
Orientation	Omni	Omni	Omni	Omni	Omni	Omni	
Antenna Beamwidth	Omni	Omni	Omni	Omni	Omni	Omni	
Coax type	1-5/8" Foam	1-5/8" Foam	7/8" Foam		1/2" heliax	1/2" heliax	As best possible cable runs
Coax Length	75'	290'					
TX Power	40W*	40W*	38W@ant.	18W@ant.	30W@ant	52W@ant	* Power measured at combiner output
Channel Frequency	Ch. 7 - 868.9125	Ch. 5 - 867.8750	Ch. 3 - 867.3750	Ch. 6 - 868.5500	Ch. 1 - 866.2125	Ch. 2 - 866.8125	Rev. 7/24/2003

Omni-directional antennas were used at all sites to provide the most generic data for post-processing analysis. The mobile test equipment used for signal strength measurements was the *Wireless Measurement System* (WMS) by Grayson Electronics. This vehicle-mounted equipment was used to conduct drive data collection in the defined coverage area. During drive data collection, a data point was recorded every 0.1 mile by averaging a minimum of 50 data points within a 40-wavelength measurement window. This data was then stored in various *log* files. The output of these log files are plotted (using Matlab Spectrum Engineering Tools) on the following page.

Port Authority System



- >= -85 dBm
- >= -101 dBm

Measurement coverage is reduced from 93% to 66% over the measured service area

This is **unacceptable** for protection of public safety operations